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## 1. Safety instructions

Your PRIMEDIC™ **Defi-Monitor** requires a charging unit to charge the battery. Modern technology based on the many years of experience in the development and production of defibrillators together with new shock absorbing materials and new ideas offer the necessary support when every second counts.

The following has to be considered in order to ensure safe and perfect function of the PRIMEDIC™ **Defi-Monitor** and to avoid risk to human beings and other material property:

1. Any use of the PRIMEDIC™ **Defi-Charger** has to be in strict compliance with these instructions for use.

2. The PRIMEDIC™ **Defi-Charger** is designed exclusively for the applications set out and described in this manual. Using the device for purposes any other than those mentioned in this manual may constitute a risk and is considered contrary to its designated use.

3. Operation of the PRIMEDIC™ **Defi-Charger** in areas subject to explosion hazards is not permitted.

4. Any repair work, modifications, additions and installations of the PRIMEDIC™ **Defi-Charger** may only be carried out by personnel authorized and trained by Metrax. The parts of the PRIMEDIC™ **Defi-Charger** may not be repaired by the user.

5. The device may only be used with accessories, wearing parts and disposable parts of which safe and reliable use was confirmed by the authority authorized for the testing of the device ready for use. All original PRIMEDIC™ accessories and wearing parts meet the test specifications.

6. Before using the device the user has to check that the device is in a safe and reliable state. If the PRIMEDIC™ **Defi-Charger** or the supply cable is damaged, the defibrillator may only be used with batteries. The Defi-Charger has to be repaired immediately.

7. Do not use the PRIMEDIC™ **Defi-Monitor** near devices (e.g. measuring devices) sensible to magnetic fields or disturbing sources, which could interfere with the functions of PRIMEDIC™ **Defi-Monitor**. Keep sufficient distance.

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## 2. Device specification

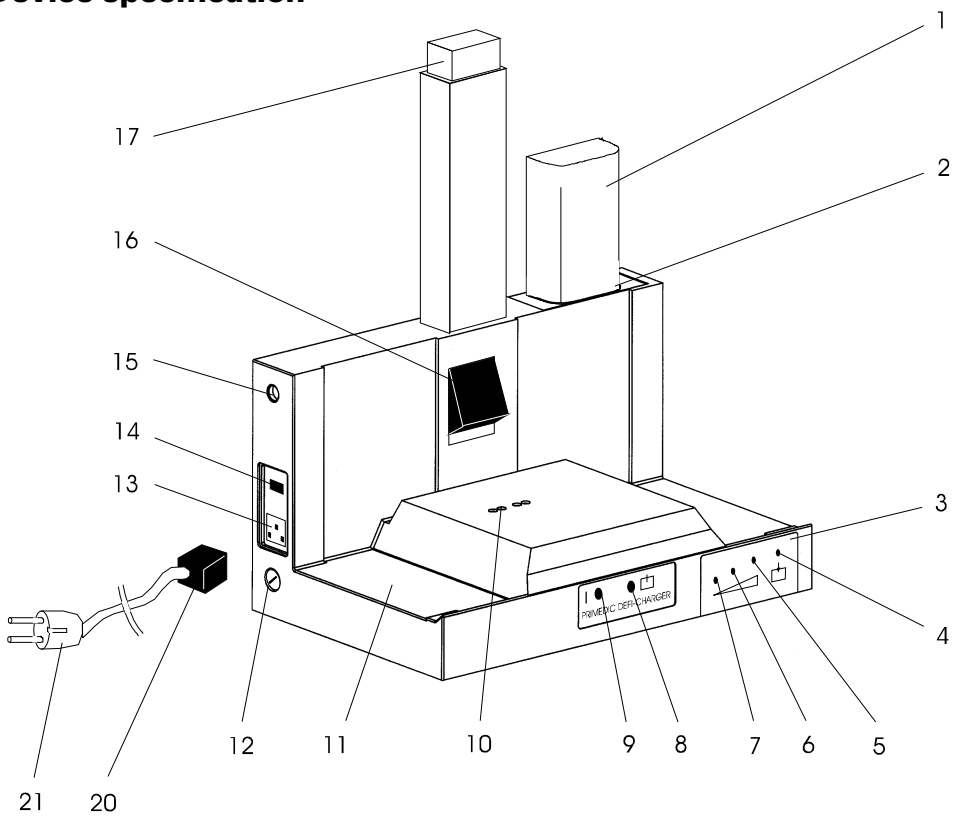



**Illustration 1:** PRIMEDIC™ **Defi-Charger** charging unit with connections and indicators

| | | |
|---|---|---|
| 1 | Changeable battery(option) | Inserted in the charging shaft |
| 2 | Shaft | To charge or keep a replacement battery PRIMEDIC™ **Accu** |
| 3 | Charging module (option) | To charge a replacement battery |
| 4 | LED green | To signal that the replacement battery is being charged |
| 5 | LED green | To signal battery capacity 90 - 100 % |
| 6 | LED yellow | To signal battery capacity 50 - 90 % |
| 7 | LED red | To signal battery capacity 10 - 50 % |
| 8 | LED yellow | To signal that the battery is being charged at the defibrillator |
| 9 | LED green | To signal availability of energy to charge the defibrillator or the optional replacement battery |
| 10 | Contacts | To transmit the charging current to the defibrillator |
| 11 | Charging base | To insert the defibrillator |
| 12 | Fuse | Circuit protection for 12 / 24 V on-board voltage |
| 13 | Universal socket | To connect to the mains |
| 14 | Voltage selector | To set voltage range 115 V or 230 V |
| 15 | Lead through housing | To connect 12 / 24 V on-board voltage |
| 16 | Locking mechanism(option) | To lock the defibrillator in the charging unit |
| 17 | Release button (optional) | One-hand release of the defibrillator |
| 20 | Plug | To connect to universal socket (13) at the charging base |
| 21 | Mains plug | To connect to the mains socket |

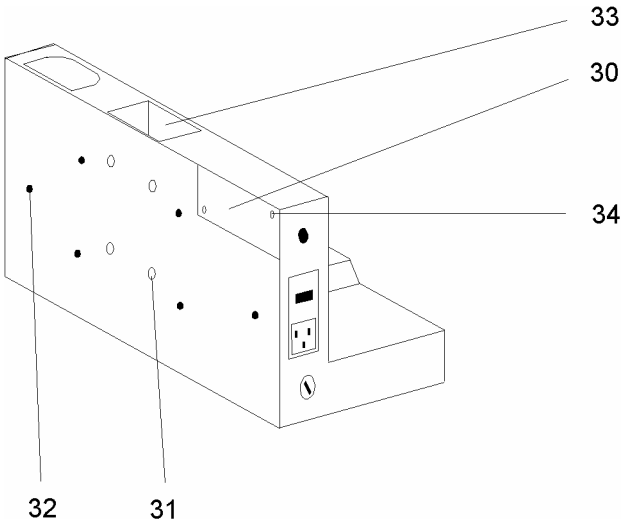



**Illustration 2:** Rear of the charging unit with mounting elements

| | | |
|---|---|---|
| 30 | Cover | for on-board connection |
| 31 | Fixing holes | for locking of the Defi |
| 32 | Holes | for wall mounting plate |
| 33 | Shaft | for locking of the Defi |
| 34 | Screws | for the cover |

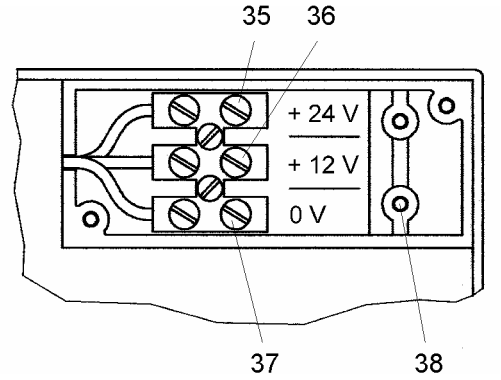



**Illustration 3:** Terminals at the rear of the charging unit

| | | |
|---|---|---|
| 35 | Connection + 24 V | for 24 V on-board voltage |
| 36 | Connection + 12 V | for 12 V on board voltage |
| 37 | Connection OV | for neutral point |
| 38 | Strain relief | |

The charging unit is the power supply of the defibrillator to charge the battery of the device. It provides all standard current inputs for a world-wide use:

- + 12 V DC
- + 24 V DC
- 115 V, 50 / 60 Hz
- 230 V, 50 / 60 Hz.

The charging unit has no on-/off-switch. To separate the charging console from mains please unplug mains plug from live socket.

The four springs provide contact with the PRIMEDIC™ **Defi-Monitor** when it is inserted in the charging unit and the energy can be transferred.

All functions of the PRIMEDIC™ **Defi-Monitor** are available when the defibrillator is inserted in the charging unit. But a PRIMEDIC™ **Accu** must be inserted on the side of the defibrillator. This is a safety precaution to avoid that the defibrillator is removed in an emergency situation without an battery inserted.

A comfort version of the unit is available as option allowing to charge a second battery. When using the comfort version with Accu-Care function the battery receives best maintenance which prevents the problematic memory effect. Retrofitting of all standard charging units with the Accu-Care option is possible. After insertion of the second battery it is first checked and than discharged completely before the battery is charged. This procedure in conjunction with the micro processor controlled charging avoids efficiently the "Memory"-effect of the NiCd batteries. Conservation of charge, protection against total discharge, temperature monitoring, indicators for capacity and charging status are included in this option.

Mounting of the charging unit to walls of buildings or in ambulance cars is possible by means of different adapters (option). Easy and quick removal of the defibrillator is guaranteed by the one-hand release.

## 3. Electrical installation

The electrical connection of the charging unit can be realized with:

- On-board voltage (12 V / 24 V DC) or
- Mains voltage (115 / 230 V, 50 / 60 Hz)

The charging unit is automatically fed through the mains lead if mains voltage and on-board voltage are connected.

### 3.1 Connection to mains voltage 230 V

The mains voltage is connected via plug-in lead on the side of the charging unit. The unit provides a universal socket (13). The adaptation to the different country-specific wall outlets is realized with different mains leads or a voltage selector (14). The fuses are integrated in the voltage selector as well.

To disconnected the charging unit from mains please unplug mains cable from live socket.

The default setting of the charging unit is the 230 V - range and the corresponding fuses are inserted. The value „230 V" is visible in the piece of the fuse section.

**Procedure:**

1. The plug (20) of the mains lead must be plugged in the universal socket (13) of the charging unit.

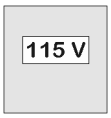
2. The mains plug (21) must be plugged in the live socket.

3. The green LED (9) lights up if the charging unit is fed with energy.

4. Insert the PRIMEDIC™ **Defi-Monitor** with an battery connected in the charging unit. The LED (8) have to lights up.

## 3.2 Connection to mains voltage 115 V

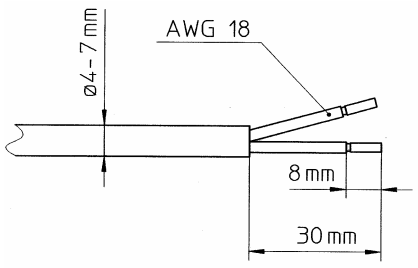
Install the charging unit as follows if the mains voltage is 115 V, 50/60 Hz:




1. Open the section for the voltage selector (14). Insert a flat screw driver from above into the narrow groove and fold down the section.
2. Pull out the module with the fuses.
3. Remove both fuses and insert the fuses for 115 V - operating voltage (Art.-No. 72315, 800 mAT)
4. Replace the module with the fuses so that the label 115 V - is clearly visible.
5. Close the section for the voltage selector. The value „115 V" must be visible in the piece, otherwise repeat the steps 1 - 5.
6. The plug (20) of the mains lead must be plugged in the universal socket (13) of the charging unit.
7. The mains plug (21) must be plugged in the live socket.
8. The green LED (9) lights up if the charging unit is fed with energy.
9. Insert the PRIMEDIC™ **Defi-Monitor** with an battery connected in the charging unit. The LED (8) has to light up.

**Attention:**
The charging unit must not be connected to a mains voltage higher than 120 V, 50/60 Hz if the voltage range 115 V is set. Otherwise the unit may be overloaded or the fuses may react.

**Notice:**
To disconnect the charging unit from mains please unplug mains cable from live socket.




## 3.3 Connection to on-board voltage

Connection of the device to on board voltage is only allowed in ambulance cars. The connection to on-board voltage (12 V / 24 V DC) is designed as permanent connection. To disconnect the charging unit from the power supply the ambulance has to be provided with a disconnection device by means of an ON/OFF switch.

Connection must take place before the mechanical installation. The connector is located at the rear of the charging unit, behind the cover (30). The cable for the on-board connection must show the following properties:

- No. of conductors: 2
- Min. cross section: 2 x 0,75 mm² ... 2 x 2,5 mm²
  2 x AWG 18 ... AWG 14
- Outside diameter: Ø 4 ... 7 mm.

The connection of larger cross sections or outside diameters is hardly possible or the buckling protection included in the delivery cannot be used.

**Procedure:**

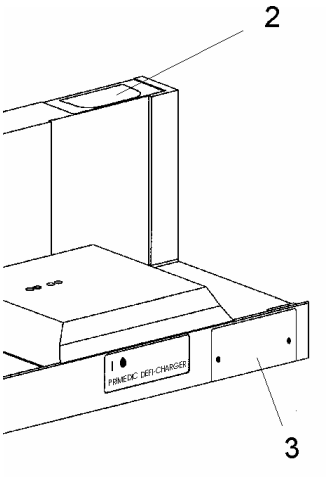
1. Open the rear cover (30) by unscrewing the two screws with a crosstip screwdriver.
2. Remove the cover from the leadthrough (15).
3. Insert the buckling protecting sleeve through the opening in the case (15).
4. Strip the cable according to the opposite drawing.
5. Insert the cable through the buckling protecting sleeve, until a safe connection of the cable in the case is possible.
6. Connect the cable at the corresponding connection points. Ensure correct polarity and voltage. Connection of the + 24 V - lead to terminal (35), connection of the + 12 V lead to terminal (36), connection of the neutral point to terminal (37).
7. Fix the traction relief (38) at the cable.
8. Close the cover at the rear.
9. Depending on the voltage connected the corresponding fuse has to be inserted in the fuse holder (12). Use the following fuses included in the delivery:

| | | |
|---|---|---|
| 12 V DC | 6,3 AT | Art.-No. 72317 |
| 24 V DC | 3,15 AT | Art.-No. 72316. |

10. After correct connection and switch-on of the voltage the green LED (9) on the front side has to light up.
11. Insert the PRIMEDIC™ **Defi-Monitor** with the battery connected into the charging unit. The LED (8) has to light up.

**Attention:**
Make sure that the correct fuse is being inserted for the on-board voltage connected. Otherwise it may result in an overload of the charging unit or a failure of the fuse.

**Attention:**
The connection of + 12 V and + 24 V at the same time is not allowed.




## 3.4 Connection of the Accu-Care charging module

For the installation of the charging module proceed as follows:

1. Pull the lamination sheet off the shaft (2). The shaft for inserting or storing the replacement battery is now open.
2. Pull the lamination sheet of the charging module shaft (3).
3. Screw off the cover of the charging module shaft (3). Slacken the two screws.
4. Carefully remove the connector from the shaft. Avoid any tensile load.
5. Insert charging module into the shaft until the connector fits on the charging module.
6. Connect the plug with the male connector of the charging module without any pressure. Connection is possible only with correct polarity.
7. Insert charging module until the front cover and the front edge of the charging unit are a flush surface.
8. Fix the charging module with the two screws.
9. Stick the enclosed front sheet parallel to the edges on the front side of the charging module, so that the transparent parts of the sheet cover the LEDs.

After installation of the charging module has been completed, perform an operational test:

1. The green LED (9) has to light up as indication that energy for loading the replacement battery is available.
2. Insert the PRIMEDIC™ **Accu** according to chapter 5.2 (Charging of the replacement battery) in shaft (2).
3. After the battery is inserted it will be checked and discharged. All the three battery LEDs (5 - 7) in the charging module must be active during this process.
4. Pull out the battery and insert it again. The LEDs (4) and (7) light up.

If the above mentioned discharging/charging steps cannot be carried out correctly, please check the following:

1. Does the green LED (9) lights up? Yes, please check whether the voltage is set correctly.
   - for 12 V: Is the device connected + 24 V by mistake?
   - for 115 V: is 230 V set in the voltage selector (14) by mistake?
2. Is the battery inserted correctly? Pull out the battery and insert it again.
3. Is the red 10 % LED (7) still flashing? The battery may be defective (e.g. total discharge). Replace the battery.

## 3.5 Troubleshooting

Proceed as follows to search for an error cause if the green LED (9) does not light or LED (8) after the defibrillator is placed on the charging unit:

1. **Green LED (9) does not light up**

- Check the mains or on-board voltage, whether it is switched on?
- Voltage level sufficient (e. g. connection of 115 V with 230 V - setting)?
- Fuses inserted?
- Fuse reacts (wrong value inserted, voltage connected incorrectly)?

2. **Green LED (9) lights up, LED (8) does not light up or is flutter**

- On-board voltage + 12 V connected to + 24 V by mistake?
- Mains voltage 115 V connected to 230 V - setting by mistake
- On-board voltage (+ 12 V or + 24 V) is lower than lower voltage limit.

**Attention:**
Contact an authorized service technician if the function of the charging unit cannot be guaranteed after having checked the above mentioned points.

## 4. Mechanical installation

Wall mounting or mounting into a vehicle of the charging unit PRIMEDIC™ **Defi-Charger** is possible by means of various adapters. The Defi locking mechanism with on-hand release and the case lock for mounting at the defibrillator are included in the delivery. The locking mechanism will be engaged in the case lock of the defibrillator and fixes the defibrillator.

### 4.1 Mounting of the Defi locking mechanism (option)

**Procedure:**

1. Slacken the four screws at the Defi locking mechanism (33).
2. Insert the Defi locking mechanism into the shaft (33). Ensure that the aluminum guide is inserted as far as possible.
3. Insert the long screw into the opening of the bottom-plate of the charging unit and tighten the screw, so that the locking mechanism will be fixed in the lowest position in the shaft.
4. Insert the four screws in the fixing holes (31) and tighten them.

**Attention:**
The Defi locking mechanism must be fixed correctly with the screws, as otherwise the defibrillator will not be hold reliable.

## 4.2 Mounting of the wall mounting plate (option)

**Procedure:**

1. With a connection to + 12 V / + 24 V - on-board voltage the electrical connection according to chapter 3.3 must be carried out first.

2. Mark the corresponding drilling holes at the mounting place by means of the drilling jig (see manual „Preliminary measures and technical data“) or by means of the mounting plate.

3. Attach the mounting plate to the charging unit. Insert the six screws enclosed through the holes of the mounting plate so that the heads of the screws fit into the sinks. Fasten the plate with the screws (32).

4. Fix the complete unit to the mounting place, as required.

**Notice:**
For mounting the charging unit to single-plank walls or sandwich type plaster boards additional measure may be necessary, e.g. counter plates. In case of doubts, contact an engineer engaged in statical calculations,.

**Notice:**
To prepare the mounting in vehicles or buildings please consult the manual „Preliminary measures and technical data“.

**Attention:**
When mounting the charging unit in vehicles the statical load as well as the load caused by the dynamics of vehicle movement, e.g. full braking or holes in the road must be considered. The structure of the vehicle's wall (thickness of the sheet) and the fixing type (screw type and number of screws) have to match.

## 4.3 Attachment of the case lock to the defibrillator (option)

The solid case lock must be attached to the defibrillator to ensure safe engagement of the locking mechanism, if the charging unit is installed with wall mounting.

Insert the case lock (included in the delivery for wall mounting) in the recess at the rear side of the defibrillator. Tighten the enclosed six screws with a crosstip screwdriver.

**Attention:**
The case lock must be attached by all means if the defibrillator is to be locked on the charging unit. Otherwise the defibrillator may fall off the charging unit. Damages to the defibrillator and injuries of surrounding persons are possible.

**Attention:**
Only use the six screws enclosed, as they are suitable for the material of the case and fits the holes in the defibrillator.

# 5. Handling of the charging unit

## 5.1 Insertion / removal of the defibrillator

To charge the defibrillator it must be placed on the charging unit. The shape of the charging unit and the shape of the bottom of the PRIMEDIC™ **Defi-Monitor** guarantee a correct alignment of the device and consequently a reliable contact. With wall mounting the defibrillator automatically locks in the charging unit.

After the defibrillator has been placed on the charging unit the LED (8) has to light up. This indicates that the defibrillator becomes charged.

To remove the PRIMEDIC™ **Defi-Monitor** from the charging console take the defibrillator at the handle and press the release button (17), for example with the index finger. Now the defibrillator can be removed or tilted forwards to have access to the second battery. For versions without locking mechanism the defibrillator can be removed without pressing a release button.

**Notice:**
After the installation of the defibrillator check that the locking mechanism engaged correctly.

## 5.2 Charging of the replacement battery (option)

Charging of a second PRIMEDIC™ **Accu** is possible only with the comfort version of the charging unit.

Insert the PRIMEDIC™ **Accu** (1) in the shaft (2) of the charging unit with the contacts showing downwards. Insert from top to the bottom.

If the charging unit is mounted e. g. at the wall and the defibrillator is inserted, you can still insert or remove the second battery. To do so press release button (17) and tilt the defibrillator to the front until access to the shaft is possible.

After insertion the battery capacity is checked. Then a controlled discharge of the battery takes place which is indicated by the lighting of the LEDs (5 - 7).

At the end of the discharging the battery is charged completely. LED (4) lights to indicate the charging process. When charging of the PRIMEDIC™ **Accu** is finished LED (4) goes off and the 100 % - LED (5) is active. The battery can be removed. The charged capacity is conserved if the battery remains on the charging unit for a longer period.

**Notice:**
To stop discharging the battery and to switch over to the charging period, remove the battery and insert it again.

**Notice:**
The red 10 % LED (7) of the charging module is flashing if the battery is defective, e.g. total discharge or short-circuit of the cells. Replace the battery by a new one.

**Notice:**
In case the charging process of the Accu is completed (LED 4 turns off) without having reached full capacity, that is the green LED (5) does not light, the accu care should be repeated two- to three times.

**Notice:**
The charging of the Accu sould take place within an operating temperature between +10°C and +50°C. However charging processes are possible outside of this area, a damage and a early aging of the Accu can not be excluded.

**Notice:**
In order to ensure continuous availability and to protect against unnoticed complete discharge it is necessary that the charging device is always connected to an energy-source.

## 6. Maintenance and care

For maintenance of the PRIMEDIC™ **Defi-Charger** we recommend a commercial domestic cleaner or disinfectant. Use a wet, clean cloth for cleaning.

**Attention:**
Do not use soaking wet clothes for cleaning. Do not pour any liquids over the unit and do not plunge it into water.

Regardless whether the device is used or not, we recommend visual inspections / maintenance of the PRIMEDIC™ **Defi-Charger** to be carried out by the user. Pay attention to the following:

1. Check whether the parts of the casing are damaged.

2. Check whether the insulation of the connection cable is damaged

3. Operational check of the four spring contacts (10). Do the contacts show spring motion with slight pressure, do they return in normal position when they are relieved from pressure?

4. Does the latch (16) engage in the case lock of the defibrillator? Is there a spring deflection when pressing the latch? (Only for wall mounting).

**Attention:**
Damaged parts of the casing and insulations or the locking mechanism have to be repaired immediately.

## 7. Waste Treatment

At the end of its useful life, the unit must be recycled in accordance with the relevant local regulations. In case of doubt, please request details from the local recycling company.

## 8. Replacement of the fuses

A failure of the fuse is possible if the green LED (9) does not light, while the power supply if switched on.

**Replacement of the fuses for mains voltage:**

1. Pull the mains plug off the charging console.
2. Open the section for the voltage selector (14). Insert from above a flat screwdriver in the narrow groove and fold the cover downwards.
3. Pull out the fuse holder.
4. Remove the fuses and replace them by new ones.
5. Push in the fuse holder. The correct voltage value must be visible (115 or 230 V).
6. Close the section for the voltage selector. The voltage value „115 V" must be visible in the piece, otherwise repeat the steps 1 - 5.
7. Connect the plug (20) of the mains lead with the universal socket (13) of the charging unit.

Use the following fuses:
230 V: 500 mAT, 250 V, IEC 127-2/V
115 V: 800 mAT, 250 V, IEC 127-2/V .

**Replacement of the fuses 12/24V - on-board voltage**

1. Insert a slotted screwdriver in the groove of the fuse holder (12).
2. Screw off the fuse holder (12) counter-clockwise.
3. Remove the fuse.
4. Replace the fuse by a fuse with the correct value for the voltage selected.
5. Insert the fuse holder with the fuse inserted.
6. Close the fuse holder clockwise.

Use the following fuses:
12 V: 6,3 AT, 250 V, IEC 127-2/V
24 V: 3,15 AT, 250 V, IEC 127-2/V

# 9. Technical data, accessories, symbols

## 9.1 Technical data PRIMEDIC™ Defi-Charger

| | |
|---|---|
| Input voltage: | 115 V, 50 / 60 Hz<br>230 V, 50 / 60 Hz<br>12 V DC<br>24 V DC selectable<br>240 V version on demand |
| Voltage limits: | Mains voltage: + 6 % - 10 %,<br>On-board voltage: + 25 % - 15 % (10 ... 15 V DC or 20 ... 30 V DC). |
| Output voltage: | Charging voltage for 14,4 V - NiCd battery |
| Power consumption: | max. 65 W |
| Function: | automatic charging of the battery when the defibrillator is placed on the charging unit, conservation of charge |
| Option: | parallel charging of a second PRIMEDIC™ **Accu** in the charging unit, controlled discharging and charging of the battery, avoiding the memory-effect. Indication of the charging status and the charging process. |
| Charging time: | 45 minutes for the battery on the PRIMEDIC™ **Defi-Monitor**<br>160 for second battery (+ discharge time approx. 2 h) |
| Mechanics: | Charging unit with optional mounting elements for wall mounting or mounting in vehicles. |
| Protection class: | I |
| | CE |
| Dimensions: | 32 x 20 x 18 cm (W x D x H) |
| Weight: | 2 kg |
| Operating conditions: | 0 ... 50 °C, 30 ... 95 % rel. humidity, but without condensation<br>700 hPa ... 5000 hPa for 1 h,<br>700 hPa ... 1060 hPa continuous service |
| Storage and transport condition | -20 ... 70 °C, 20 ... 95 % rel. humidity, but without condensation<br>500 hPa ... 1060 hPa |

Subject to alterations.

## 9.2 Delivery specifications

**1.** Charging unit PRIMEDIC™ **Defi-Charger** (Basic version) 96188
consisting of:
1 Charging unit PRIMEDIC™ **Defi-Charger**
1 Cord set
1 Fuse set 115 V (2 pieces), 800 mAT, IEC 127-2/V
1 Fuse 12 V (1 piece), 6,3 AT, IEC 127-2/V
1 Fuse 24 V (1 piece), 3,15 AT, IEC 127-2/V
1 Instrctions for use of PRIMEDIC™ **Defi-Charger**, English

**2.** Charging unit PRIMEDIC™ **Defi-Charger** (comfort version) 96350
consisting of:
1 Charging unit PRIMEDIC™ **Defi-Charger**
1 Cord set
1 fuse set 115 V (2 pieces), 800 mAT, IEC 127-2/V
1 Fuse 12 V (1 piece), 6,3 AT, IEC 127-2/V
1 Fuse 24 V (1 piece), 3,15 AT, IEC 127-2/V
1 Accu-Care charging module
1 Changeable battery PRIMEDIC™ **Accu**
1 Instrctions for use of PRIMEDIC™ **Defi-Charger**, English

## 9.3 Spare parts

| | | | | |
|---|---|---|---|---|
| PRIMEDIC™ **Accu** (battery) | | | | 96330 |
| Accu-Care charging module | | | | 96189 |
| Fixation module wall | | | | 96193 |
| 230 V: | 1 fuse | 500 mAT / 250 V | 5 x 20 mm | |
| 115 V: | 2 fuses | 800 mAT / 250 V | 5 x 20 mm | |
| 12 V: | 1 fuse | 6,3 AT / 250 V | 5 x 20 mm | |
| 24 V: | 1 fuse | 3,15 AT / 250 V | 5 x 20 mm | |

## 9.4 Symbols

**Rating plate:**

Degree of protection B

## 10. Conditions of Guarantee

As the manufacturer, METRAX grants a guarantee on this device for 2 years starting with the date of purchase. During this period, METRAX will eliminate any defects in the device, resulting from material faults or manufacturing faults, free-of-charge. Elimination of defects is made by METRAX either by repair or by replacement. Any repair carried out during the guarantee period shall not extend the original guarantee period.

The right to claim under guarantee and damage claims provided by law do not apply in case of only immaterial impairment of usefulness, natural wear or damages, produced after liability transfer to the buyer, as a result of wrong or negligent use, excessive stress or caused by extreme external influences not covered by the terms of agreement. The same applies if the buyer or third parties perform modifications or repair work in an unprofessional manner.

Further contractual and non-contractual claims against METRAX are excluded unless such claims are based on intent or on severe negligence or on compelling liability regulations provided by law.

Claims for damages by the buyer against the seller (trader) remain unaffected by this guarantee.

In case of claims under guarantee, you are asked to send the device including a buyer's certificate (e.g. a bill), stating your name and address, to your dealer or to METRAX.

The METRAX-customer service will be glad to assist you even after the guarantee period has expired !